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Technology Transfers: Do Crackdowns Work?

Secrecy Manias Only Backfire

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As reports spread of defections from both the Western security apparatus and from the KGB, it has become clear that neither side can protect its most precious military secrets. Yet a U.S. defense establishment spouting key military data from every pore is now vainly seeking to regulate the world-wide flow of information and products from America's thousands of high-technology companies and technical schools, conferences and publications. It is an effort that cannot succeed in denying the Soviets anything of importance, but can endanger America's leadership in high technology.

Frustration among U.S. policy makers is nonetheless understandable. North Atlantic Treaty Organization nations granted some $80 billion in financial credits and loans to communist nations during the 1970s—much of it for the purchase of militarily relevant technology. Last month, in introducing a new Pentagon report, Defense Secretary Caspar Weinberger asserted that "the benefits to the Soviet military research establishment from acquisitions of Western technology are far greater than previously believed."

Because communism could not survive without such technical and economic support, many anti-communists long to deprive the communist world of its lifeline to the West. On both the left and right, everyone quotes Lenin's assurance that when it comes time to hang the capitalists, they will eagerly rush forth to sell their hangmen the rope, presumably with low-interest credits from the Export-Import Bank.

The Reagan administration has generally intensified the rhetoric and increased the restrictions on the giveaway of U.S. secrets. New rules are being applied to technical conferences. On July 12, the president signed yet another Export Administration Act to codify efforts to stop the flow of technology. Under the leadership of GOP Rep. Ed Zschau of California's Silicon Valley, the bill was narrowed in focus and procedures were streamlined. But the thrust of administration policy still attempts a futile and extravagant campaign to deprive the communists not merely of advanced military equipment but also of dual-use civilian devices like minicomputers.

Why, it is asked, should we drive up the deficit conducting an arms race with ourselves—installing MX missiles to counteract the increasing accuracy of SS-9s achieved through use of U.S. high-precision ball bearings?

Empty Celebration

The reason is that we have no choice. Just as arms control offers merely a treacherous illusion of security, an embargo of communist countries is a bluff that can only blind ourselves to the prime lesson of recent history: If we have got it, they will get it . . . and soon.

The problems of control are dramatized by the program's successes. In December 1983, for example, the Pentagon and the Treasury Department held a joint news conference to celebrate the capture of a number of Digital Equipment Corp. minicomputers (VAX 11-782s) headed to the Soviet Union via South Africa and Sweden. At the very moment of the announcement, identical computers were legally in use in Moscow hospitals. Months later DEC and the custom-chip firm Silicon Compilers would announce the reduction of the VAX central processing unit to a single chip, the Microvax. Just one-quarter-inch square, this device would be both militarily more useful and far easier to transport than the intercepted machinery. Moreover, the Soviet computer industry, in its Sistema Micro series, has long been producing crude but serviceable clones of DEC minicomputers.

Today a prime focus of restrictions is semiconductor production gear. On Sept. 6, a Spanish firm, Piher Semiconductors, pleaded guilty to transfers of $2 million of equipment that according to the prosecution "gave away the store . . . the lifeblood of high technology." Yet similar or identical equipment is fully available around the world, and it is quixotic to suppose that it can be denied to the Soviet Union. It took the South Koreans just three years to create some of the most impressive fabrication plants anywhere. But unlike commercial producers in Korea, the Russians do not need the capability of making billions of chips at high manufacturing yields; they merely have to copy the needed designs and produce enough to fulfill their military needs at whatever cost. Some of the many superb Soviet scientists and engineers are already known to have fully mastered from Texas Instruments Inc. the art of reverse engineering chips by successively photographing and stripping each layer of the device; they are probably at work on the DEC Microvax today. Under the guidance of Alfred Sarant, an American defector and friend of the executed spies Julius and Ethel Rosenberg, the Soviets created a Silicon Valley for integrated-circuit production at Zelenograd, mostly equipped with American gear. According to Pentagon reports, this facility can satisfy all essential Soviet military needs.

The situation, however, is both better and worse than the export controllers understand. The bad news is that the Soviet Union will inevitably steal everything we create. Stealing, bribing, filching and confiscating are the moral and practical essense of socialism; it is all it can do. The more the arms race is reduced to a rivalry in cloaks and daggers, the better the communists will perform.

The only way we can keep technology from the Soviet Union is to keep it also from ourselves. Indeed, this is often the result of our control program. In understandable frustration over the John Walker naval spy case, for example, Secretary Weinberger wreaked widespread havoc in the U.S. defense effort by an idiotic 10% across-the-board cutback in security clearances, both private and public. Workers lost their jobs, projects stalled, typists with clearance suddenly commanded salaries rivaling those of engineers—all because of a silly Pentagon overreaction that may have rivaled the damage from the Walker family's spying.

All too often the very classification of a technology aborts its future development. Pentagon secrecy has halted technical progress in key areas of materials science for the hardening of armor on tanks and other battlefield weaponry. The main fear at Bell Laboratories after the invention of the transistor was that the Pentagon would classify the device and thus stifle its future development. One of the Pentagon's greatest contributions to the national defense came in its decision to leave the transistor to the private sector, where its development flourished and its military utility grew in ways beyond the imagination of experts in the 1950s.

Export controls become a form of arms control imposed chiefly on ourselves. We begin by embargoing advanced-weapons technologies sent directly to Moscow; we end up seizing Apple computers on the docks in San Diego and barring urinalysis equipment because it contains embedded microprocessors available by the millions around the globe. Determined to

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deprive the Soviet Union of the ability to create very large scale integrated circuits, we end up delaying for months the shipment of photolithography gear from GCA Inc. to Hong Kong. Thus we jeopardize the reputation of American companies as reliable suppliers to the world's fastest growing markets in the Pacific and move the strategically vital semiconductor capital equipment industry increasingly to Japan and Europe. We hold up licenses for 64K memory chips sent to Singapore while their price drops from more than $2 to 55 cents and the world supply rises to the billions. We threaten to bar immigrants from physics classrooms at Stanford University, thus limiting American access to our most important source of new technical manpower.

To subject the pullulating mecca of U.S. technology to the endless rigamarole of security clearances, licenses, citizenship papers and non-disclosure agreements, snarling new technical papers in a web of bureaucratic delays, would be more devastating to the long-run U.S. national defense than the work of thousands of spies.

The good news is that the most crucial sources of technology are forever beyond the Soviet reach. Technology is not a thing; it is chiefly a process and the Soviet Union can never acquire it. Our only way to maintain leadership in the arms race is to accelerate technical progress far beyond the ability of the Soviets to absorb it. Their biggest problem would then be to sort through the incredible profusion of scientific and technical publications, devices and documents produced in the West.

Protectionism does not work any better in this area than in commerce. To win we must be better than our adversaries. Then, to paraphrase Kipling, they will copy all they can follow, but they cannot copy our minds, so we'll leave them "sweating and stealing a year and a half behind."

The beginning of wisdom is knowledge of the possible. It is impossible to control technology without ultimately killing it. Technology is always in motion; it can't be caught without stopping it, or at least slowing it down. Technology grows by photosynthesis; in darkness it dies. By turning out the lights in U.S. laboratories, we will blight technical progress. By ensnarling exports in rules and regulations, we will impair the progress of American high-technology firms operating in a world market and competing with companies with world-marketing strategies.

A Case for the Police

It now takes a U.S. firm 16 weeks on average to get a license to export high technology to Asia; it takes an Asian firm one week to export similar equipment to the U.S. High technology is the chief area in which the U.S. retains a clear advantage in the world economy; by harassing high technology, the Pentagon strikes a grave blow at the prime sources of U.S. economic strength, on which our long-run military strength most relies. As Lionel Olmer, former undersecretary of commerce for international trade, has said, "Not only do we fail to hurt the Soviets, we hurt ourselves."

The programs of export control and classification of secrets have already run far beyond their legitimate bounds. To help the U.S. defense, the number of classified papers and restricted technologies should be vastly retrenched. The idea that technology can be kept from the Russians by requiring law-abiding Americans to perform endless paper work should be abandoned. Americans who ship crucial weapons and documents to the Soviets are criminals; criminals are glad to sign papers. They can be caught not by bureaucrats but by the police. By drastically reducing the number of restricted technologies and classified documents and cracking down on purveyors of obvious military gear, the U.S. can accomplish all that is possible in the realm of technology control.

Mr. Gilder is currently writing "Microcosm," a book on the U.S. semiconductor industry to be published next year by Simon & Schuster.